

(1)

Al and Cindy each choose one of the prime numbers 2, 3 or 5

The number each one of them chooses could be the same as or different from the other.

Al squares his number and multiplies it by Cindy's number (example: $3^2 \times 2 = 18$).

How many different possible products are there?

A 27

B 18

C 9

D 8

Page 1

State the property used in each equation below.

(2)

1. $(2 + 3) \times 0 = 0$

2. $1 \times 5 \times 8 \times 10 \times 4 = 4 \times 10 \times 8 \times 5 \times 1$

3. $9 + (11 + 6) = (9 + 11) + 6$

4. $6 \times (4 \times 1) = 6 \times 4$

5. $112 + 15y + 0 = 112 + 15y$

Page 2

Simplify the following:

(3)

1. $20 - 7 \cdot 2$

2. $6 - 9 \div 3$

3. $16 \cdot 3 + 12 \div 4$

4. $11 - 5(4 - 2)$

Page 3

Simplify the following:

(4)

1. $-6 + 4$

2. $7 - 13$

3. $(-24) \div (-8)$

4. $(-9) \cdot (-7)$

Page 4

(5)

Solve.

1) $-|-6 + 2|$

2) $|5 + 10| - |-1|$

3) $2|-2| - |6 - 11|$

4) $-5|-1 + 4| + 2|-6 - 4|$

Page 5

(6)

Solve.

1) $|3x - 4| = 17$

2) $|2 - 2x| = 12$

Page 6

Solve.

(7)

1) $|x + 9| = 12$

2) $|9 - x| = 12$

Page 7

(8)

Warm-up: Combine like terms

$$-5n + 3(6 + 7n) =$$

$$4x^2 + 3y + 5x + 6x^2 = \underline{\hspace{2cm}}$$

$$2y^2 + 2y + 2y + 2x^2 = \underline{\hspace{2cm}}$$

$$x^2 + 8y - 4y + 8x^2 = \underline{\hspace{2cm}}$$

Page 8

(9)

Factor:

1) $x^2 - 7x + 10$

2) $x^2 + 14x - 32$

3) $x^2 + 14x + 24$

Page 9

(10)

Proceed to the following URL and complete as many problems correctly as you can:

iXL.com, Algebra 1, I.6

<http://www.ixl.com/math/algebra-1/solve-equations-using-order-of-operations>

Page 10

(11)

Factor these expressions.

1) $x^2 - 7x - 18$

2) $p^2 - 5p - 14$

3) $m^2 - 9m + 8$

4) $x^2 - 16x + 63$

(12)

Boulder received 9.61 inches of rain (per square inch) from the rainstorms. Typically in Colorado one inch of rain is equivalent to 10 inches of snow. A meteorologist said that this would be over nine feet of snow. Is this a reasonable approximation?

(13)

If it takes 20 seconds to inflate a balloon with helium from a tank, how many balloons can be inflated in six minutes?

Page 13

(14)

What steps are needed in order to solve this equation for x ?

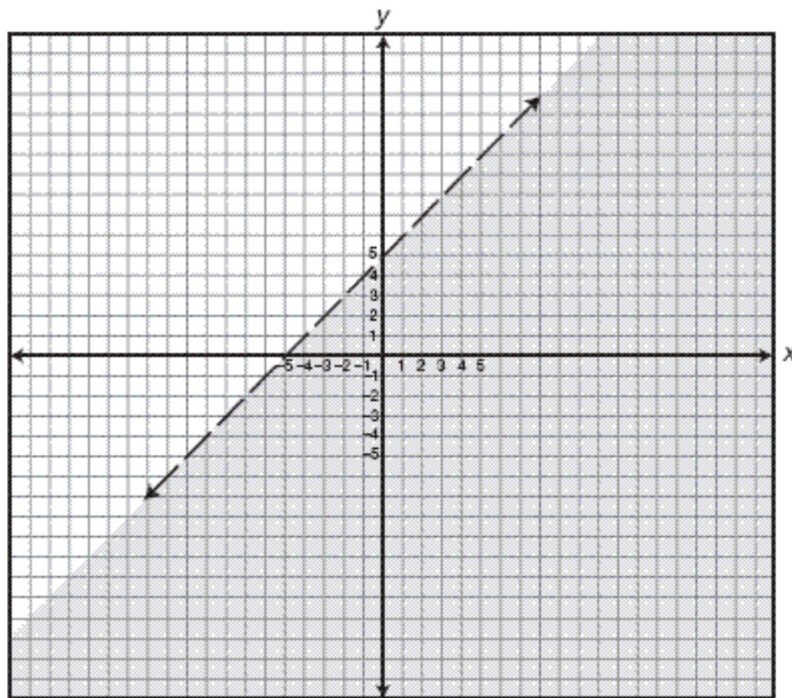
$$\frac{x^2}{9} + \frac{y^2}{4} = 4$$

Bonus: What is x equal to?

Page 14

(15)

What is the equation for this inequality?



Page 15

(16)

1) Isolate C .

$$A = \frac{C^2}{4\pi}$$

2) Isolate x .

$$-5(2x - 4y) = 0$$

East table will work #1, center table #2, and west table will join either east or center. Be prepared to explain your work to the class.

Page 16

(17)

A vending machine dispenses products that each cost 60¢. It accepts nickles, dimes, and quarters only. If it accepts only exact change, how many different coin combinations must the machine be programmed to accept?

Discuss your results with a partner.

Page 17

(18)

What methods can you use to solve this problem?

Solve $\frac{5x - 4}{2x - 3} = \frac{10(3 - x)}{17 - 4x}$

A $x = -4$

B $x = -3$

C $x = -2$

D $x = -1$

Use pen and paper to work out the answer

Solve using one of those methods.

Page 18

Solve.

(19)

In a CD store two CDs have the same price.

The price of the first CD was reduced by 5%

And the price of the other one was increased by 15%.

After this change the prices of the two CDs differed by \$6.00.

How much is the cheaper CD now?

A \$1.50

B \$28.50

C \$30.00

D \$34.50

[Remember to learn from your mistakes](#)

Page 19

Solve.

(20)

$A = (-3, -2)$, $B = (x, 3)$ and $C = (4, 5)$

If $AB = BC$, what is the value of x ?

A $x = -1$

B $x = 0$

C $x = 1$

D $x = 7$

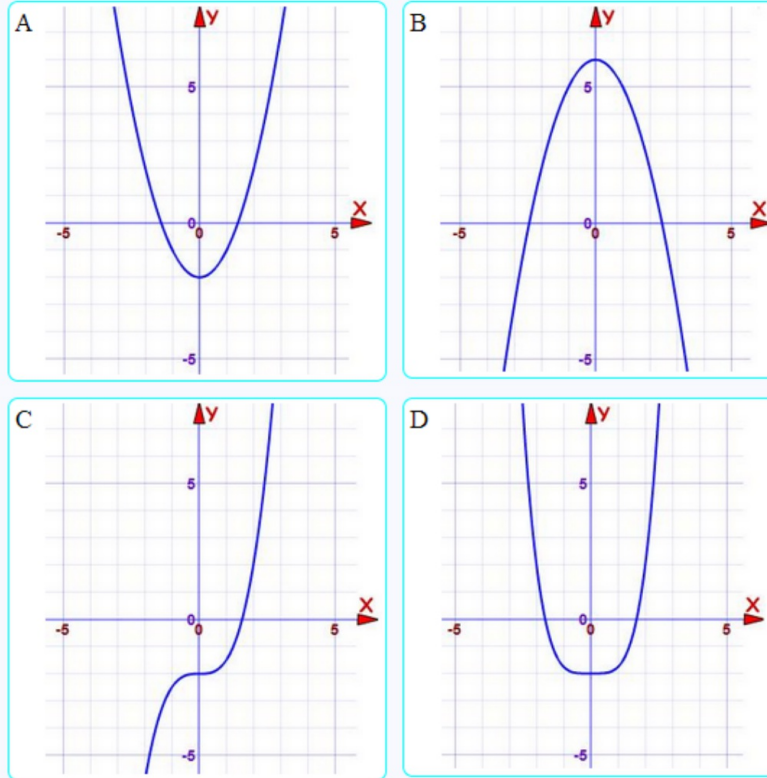
[This is NOT a TEST ... it is just you learning.](#)

Page 20

Solve.

The curve $y = 0.25x^4 - 2$ passes through the points $(-2, 2)$, $(0, -2)$ and $(2, 2)$. Which one of the following could be the graph of $y = 0.25x^4 - 2$?

(21)



Get lots of practice to increase your skills.

Page 21

Solve these equations:

(22)

$$h(t) = |t + 2| + 3; \text{ Find } h(6) \quad f(x) = x^2 - 3x; \text{ Find } f(-8)$$

$$f(x) = 2x^2 - 3; \text{ Find } f(8) \text{ and } f(-4)$$

Page 22

(23)

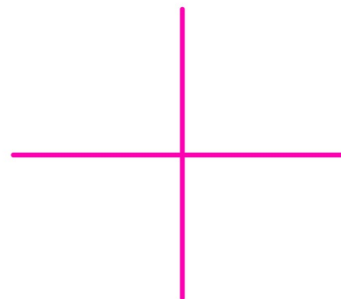
What is the domain and range of the given function?

$$y = \frac{x^2 + x - 2}{x^2 - x - 2}$$

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(24)

Problem What are the domain and range of the real-valued
function $f(x) = \frac{3x}{x+2}$?



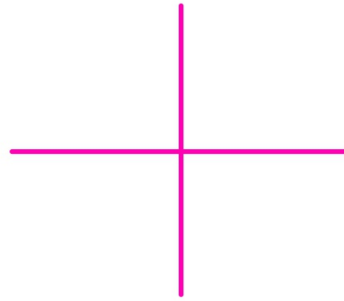
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(25)

Find the domain and range of this equation.

$$y = \sqrt{|x - 4|}$$

Graph the equation.



Page 25

Solve.

(26)

The following table gives the times taken to run 100 m for 10 friends:

Name	Time taken to run 100 m (secs)
Albert	11.3
Beth	12.9
Cindy	11.9
David	10.3
Emily	11.1
Frank	17.5
Gary	10.8
Helen	10.5
Ida	12.0
Jeremy	10.9

If the time taken by the outlier is not included, what is the mean time?

A 13.24 secs

B 11.92 secs

C 11.3 secs

D 10.17 secs

Using your brain is good for you

Page 26

(27)

Find the vertex.

$$x^2 + 6x + 7 = 0$$

Page 27

(28)

Find the vertex.

$$5x^2 - 4x - 2 = 0$$

Page 28

Solve for x . $4x^2 - 2x - 5 = 0$ (29)

Page 29

Solve this combined function problem step-wise. (30)

$$A(x) = \left(1 + \frac{0.07}{12}\right)x - 250$$

c. $A(A(A(18000)))$

Page 30

Explain the process for finding
the composition of a function.

(31)

1) Find $f(g(x))$: $f(x) = x^2 + 4$
 $g(x) = 2x$
 $f(g(x)) =$

2) Explain verbally what you did to arrive at $f(g(x))$.

What is the vertex of the following equation?

(32)

$$y = x^2 - 6x + 14$$

(33)

Solve.

How many **different** prime factors does the number 252 have?

A 2

B 3

C 4

D 5

Remember to learn from your mistakes

Page 33

ACT QOTD 10/17/13

(34)

When graphed in the (x,y) coordinate plane, at what point do the lines $x + y = 5$ and $y = 7$ intersect?

A. $(-2,0)$

B. $(-2,7)$

C. $(0,7)$

D. $(2,5)$

E. $(5,7)$

Page 34

(35)

Find the domain and range of the following function:

$$y = \frac{x+2}{x-1}$$

D:

R:

(36)

Find the domain and range of the following function:

$$y = \frac{x^2-9}{x+3}$$

D:

R:

Combine $f(x)$ and $g(x)$ to create $g(f(x))$. (37)

$$f(x) = \frac{x+3}{2x} \qquad g(x) = x^2 - 2$$

Combine $f(x)$ and $g(x)$ to create $f(g(x))$. (38)

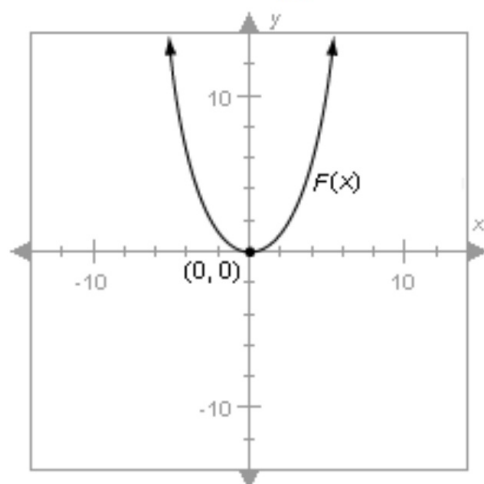
$$f(x) = x^2 + 2x - 5 \qquad g(x) = 4$$

(39)

Find the domain and range.

D:

R:



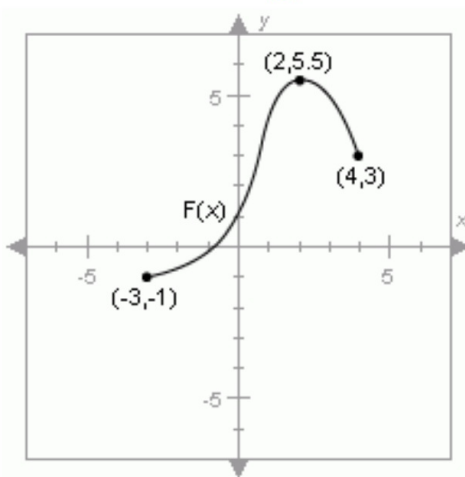
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(40)

Find the domain and range.

D:

R:



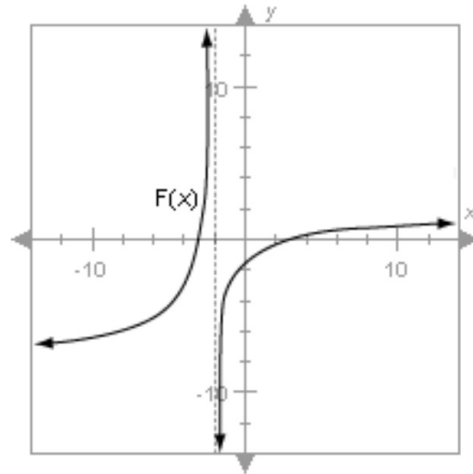
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Find the domain and range.

(41)

D:

R:

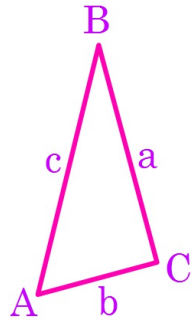


Multiply these rational expressions.

(42)

$$\frac{3(x+3)}{4(x-4)} \times \frac{x-1}{x+2}$$

In triangle ABC, if $\angle A$ and $\angle B$ are acute angles, and $\sin(A) = \frac{10}{13}$, what is the value of $\cos(A)$?



What is the least value of x that satisfies the equation $x^2 - 7x + 6 = 6$?

F. -7

G. -6

H. -4

J. 0

K. 1

Add these rational expressions.

(45)

$$\frac{x+3}{x-4} + \frac{x-1}{x+2}$$



Page 45

Subtract these rational expressions.

(46)

$$\frac{x+3}{x-4} - \frac{x-1}{x+2}$$

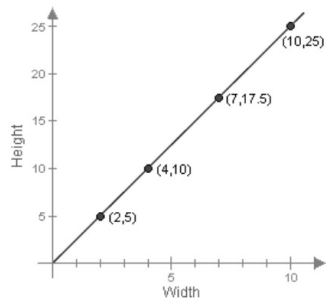


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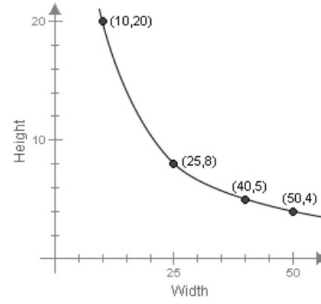
Determine whether each is a direct or an inverse variation.

(47)

A.



B.



C. $\text{Height} = \frac{\text{Constant}}{\text{Width}}$

D. $\text{Height} = \text{Constant} * \text{Width}$

Page 47

Factor this trinomial.

(48)

$$2x^2 - 2x - 12$$

Page 48

Given this factorization, find the trinomial. (49)

$$-2(3x + 2)(4x - 1)$$

Page 49

Identify these as Perfect Square Trinomials, Difference of Squares, or neither. (50)

A. $x^2 - 144$

B. $4x^2 + 56x + 169$

C. $x^2 - 120$

D. $49x^2 - 14x + 49$

Page 50

Factor these Difference of Squares.

(51)

A. $x^2 - 144$

B. $4x^2 - 4$

Factor these Perfect Square Trinomials or
Difference of Squares.

(52)

A. $9x^2 - 169$

B. $4x^2 + 52x + 169$

Factor these Perfect Square Trinomials or
Difference of Squares.

(53)

A. $4x^2 - 196$

B. $16x^2 + 120x + 225$

Page 53

Complete the square and convert this quadratic to
vertex form.

(54)

$$y = -x^2 + 2x + 9$$

Page 54

Write out the standard form for a quadratic equation and the quadratic formula.

(55)

Page 55

Set up, but do not evaluate the quadratic formula for these two quadratic equations:

(56)

A. $y = x^2 - 4x - 12$

B. $y = x^2 - 2x - 3$

Page 56

Use the quadratic formula to find the roots. (57)

$$y = 2x^2 - 10x + 4$$

Page 57

What are the roots and the vertex for this quadratic equation? (58)

$$y = x^2 - 9x + 20$$

Page 58

(59)

Given the vertex (5,-7), write the quadratic equation in both vertex form and standard form.

Page 59

Simplify.

(60)

$$A. \sqrt{15x^4}$$

$$B. \sqrt{34x}$$

$$C. \sqrt[3]{144x^7}$$

Page 60

Simplify.

(61)

$$\frac{\frac{\sqrt{x}}{\sqrt{6x^2}} * \frac{\sqrt{5x^5}}{\sqrt{6}}}{\sqrt{1}}$$

Page 61

Simplify.

(62)

$$A. \sqrt{48} - \sqrt{12}$$

$$B. \sqrt{64} + \sqrt{125} + \sqrt{121}$$

$$C. \sqrt{24} + \sqrt{124} - \sqrt{96} - \sqrt{248}$$

Page 62

Find the quotient.

(63)

$$A. \frac{4 - \sqrt{7x}}{3 + \sqrt{2x}}$$

$$B. \frac{1 + \sqrt{x}}{2 - \sqrt{3}}$$